

Water-soluble copolymers of monoethylenically unsaturated polyalkylene oxide monomers and dipolar monomers containing at least one nitrogen atom

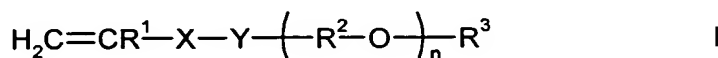
Abstract

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Water-soluble copolymers which comprise, in copolymerized form,

- (a) 60 to 99% by weight of at least one monoethylenically unsaturated polyalkylene oxide monomer of the formula I

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in which the variables have the following meanings:

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X is -CH₂- or -C(O)-, if Y is -O-;
is -C(O)-, if Y is -NH-;
is -O- or -O-(CH₂)₄-, if Y is a chemical bond;

Y is -O-, -NH- or a chemical bond;

R¹ is hydrogen or methyl;

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R² is C₂-C₄-alkylene radicals, which may be identical or different and also linear or branched, but where at least 50% of the radicals R² are ethylene;

R³ is C₁-C₂₂-alkyl, phenyl, p-(C₁-C₁₂-alkyl)phenyl or hydrogen;

n is an integer from 6 to 50,

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- (b) 1 to 40% by weight of at least one nonquaternized dipolar monomer comprising at least one nitrogen atom,

- (c) 0 to 39% by weight of other nonionic monoethylenically unsaturated monomers and

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- (d) 0 to 10% by weight of other anionic monoethylenically unsaturated monomers

and have an average molecular weight M_w of from 2000 to 500 000 D,

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and the use of the copolymers as dispersants and sequestrants for pigmented materials, as additive for detergents, laundry pretreatment compositions, cleaners for hard surfaces, dentifrices and bodycare compositions, and as auxiliaries for textile processes, paper making and paper processing and deinking processes.